

Remarks

Claims 1-11 and 18 are present in this application.

Applicants note that the PTO was directed to cancel claims 12-17 in the Amendment and Election filed May 6, 2003.

Claims 1-11 and 18 are under consideration. There are no allowed claims.

Claims 1-11 and 18 (sic) are rejected under 35 USC 103(a) as being unpatentable over Schmitter, et al., U.S. Pat. No. 5,288,778.

Schmitter '778 discloses certain hydroxyphenyl triazines for use as UV absorbers in specific polymers including polyester and polyamide. As cited, this document describes the general dosage range for these compounds, whose lower end overlaps with the present one. Col. 5, lines 17-23 of Schmitter '778 disclose that the amount of stabilizer to be used is from 0.1 to 15 and especially 0.1 to 5 parts by weight of stabilizer to 100 parts of polymer.

However, Schmitter '778, col. 10, lines 28-51, teaches that the dosage of UV absorber is related to the layer thickness: Recommendations are given for using a high loading of UV absorber, e.g. 5-15% by weight, in a thin protective layer of 10-100 μ m thickness over a polymer article containing little or no UV absorber. In accordance, the examples show usage of relatively high UV absorber loadings (1-5%) in thin films (20 μ m; polycarbonate; examples 1-2 and 4-6) or relatively low UV absorber loadings in thick plates (0.5% or 0.3% in 1 mm polyester or POM sheet (examples 7 and 9); 0.3% in 2 mm polycarbonate or polyamide sheets (examples 3 and 8)).

The Schmitter '778 disclosure is in accordance with the general knowledge of the skilled person, as expressed in Beer's law of absorption: the absorption (and thus the stabilizing effect) of a UV absorber is proportional to its dosage and inversely proportional to the sample thickness. Consequently, standard literature on the use of UV absorbers such as the cited reference recommends use of low amounts of UV absorber for high layer thickness, and high amounts of UV absorber for low layer thickness in order to reach a certain absorbance and stabilization.

Consequently, the person skilled in the art would expect a reduction of light stability with lower UVA loading in thin layers.

There is nothing in the cited reference that would teach or suggest incorporation of a hydroxyphenyl triazine into an article of thickness between 1 and 200 μm in a dosage ranging from 0.005 to 0.3 % by weight.

Deviating from the prior art, the present invention combines the parameters:

- low dosage of the hydroxyphenyl triazine,
- low thickness and
- transparency
- of polyolefin, polyamide or polyester material.

It has been the finding of the present invention that, unexpectedly, in certain thin transparent articles, the concentration of a hydroxyphenyl triazine UV absorber may be lowered significantly, while the polymer lifetime remains constant and the stabilizing effect is retained.

This effect is shown in present examples 7 and 8: Figures 1, 2 and 3 in present example 7 show the light stability of 0.1 mm polypropylene films as a function of triazine UV absorber concentration. The UV absorber used (compound j) is 2-(4,6-diphenyl-1,3,5-triazin-2-yl)-5-(hexyloxy)-phenol, i.e. Schmitter's compound Ph-4, as used in examples 4 and 5 of the cited reference.

As present figure 1 shows, the light stability remains constant when UV absorber loadings are reduced from about 0.09 % to about 0.02 % by weight. Similar results are shown in figures 2 and 3, and in figure 4 of example 8 for polypropylene tapes of 50 μm (0.05 mm) thickness, where the effect is shifted to slightly higher concentrations. Each figure shows that at certain low concentrations in these materials, the triazine UV absorber may be reduced by a factor of about 4 or 5 without negative impact on the stability of the polymer.

This deviation from linearity cannot be explained by Beer's law and is a clearly surprising result.

The effect found in the present invention allows lower UV absorber loadings in certain thin-walled polymers. The effect found is advantageous under several aspects including better persistence in the substrate, lower plateout, and lower costs.

The success demonstrated in the working Examples is unexpected and surprising and cannot be predicted from the cited art.

In view of these remarks, Applicants submit that the 35 USC 103(a) rejections are addressed and are overcome.

The Examiner is kindly requested to reconsider and to withdraw the present rejections.

Applicants note that a 3rd Supplemental Information Disclosure Statement was mailed to the PTO on July 29, 2003. The Examiner is kindly requested to indicate that the references cited therein are considered by returning an initialed copy of PTO form 1449.

Respectfully submitted,



Tyler A. Stevenson
Agent for Applicants
Reg. No. 46,388

Ciba Specialty Chemicals Corp.
540 White Plains Road
P.O. Box 2005
Tarrytown, NY 10591-9005
Tel. (914)785-2783
Fax (914)785-7102

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Attachment: Petition for a one month extension of time